

REMARKS

Claim 1 has been cancelled and claims 2, 3, 5 and 6 amended to depend, directly or indirectly, from claim 11. Claims 7-10 have been cancelled. Claims 11 and 22-25 have been retained unchanged. Claim 26 has been cancelled.

No new matter is introduced by any of the foregoing amendments.

Since all remaining claims now depend, directly or indirectly, from claim 11, it is considered that the 35 USC 103(a) rejections based on Duthaler, U.S. Patent No. 6,312,304, in view of Leibowitz, U.S. Patent No. 4,689,110, set out in Sections 5 and 6 of the Office Action, are moot, and that the only rejection which needs to be addressed is the 35 USC 103(a) rejection based on Duthaler, Leibowitz, and Sato, U.S. Patent No. 5,869,919. This rejection is traversed. More specifically, this rejection is traversed on the grounds that even if, *arguendo*, it might be obvious to combine Duthaler and Leibowitz, it would not be obvious to one of ordinary skill in the art to combine Duthaler and Leibowitz with Sato in view of the major differences between the types of displays shown in Duthaler and Sato.

Applicants concede that the summary of Duthaler appearing on page 3 of the Office Action is essentially correct. Attention is directed to the fact that Duthaler and the present claims require a reflective electro-optic material capable of changing its optical state on application of an electric field thereto, an electrode arranged to apply an electric field to the layer of electro-optic material, and a heat generating component in heat conducting relationship with the layer of electro-optic material. As discussed in detail in Paragraphs 11 to 18 of this application, reflective electro-optic media such as those used in the Duthaler display suffer imaging problems when subject to heat flow from heat generating components used in the drive circuitry of the displays. Furthermore, the reflective electro-optic media themselves have low power consumption even compared to liquid crystal displays (see Paragraph 6 of this application), and hence there is negligible heat generation within the electro-optic medium during operation of an electro-optic display such as that shown in Duthaler.

Sato, like the Kawada reference cited in an earlier Office Action, describes a plasma display panel, such as those used in so-called "plasma television sets". As the Examiner is no doubt aware, such plasma display panels are well known to have high power consumption and, as discussed at column 2, lines 46-59 of Sato, substantial amounts of heat are generated in such plasma display panels when the electrons strike the phosphor on the viewing surface of the panel. The resulting heating of the panel itself can lead to differential thermal expansion resulting in a distorted display screen, color break up and other problems. Accordingly, to prevent these problems, Sato proposes providing the display with an air blower for causing air to flow between the display panel and a housing which surrounds the panel.

In the particular embodiment of Figure 8, which is apparently intended to cope with a display which generates very large amounts of heat, provides a film 825 of silver on the rear (non-viewing) surface of the display and fins 827 of silver protruding from the film 825. Apparently to allow maximum airflow over the film 825 and fins 827, the drive circuits 820 for the display are placed on a separate board which is spaced from the film 825 and fins 827. A fan 817 is arranged to blow air at a rate of 5 cubic meters per minute (!) over the fins 827 and along both major surfaces of the drive circuits.

Even if a skilled person were to conceive of replacing the printed circuit board of Duthaler with the Leibowitz printed circuit board/heat shield, there is no reason why the skilled person would consider it necessary or even desirable to provide an air gap between the electro-optic medium and the printed circuit board. Given the difference in power consumption between the electrophoretic display of Duthaler and the plasma display of Sato, a person skilled in electro-optic displays would not consider Sato relevant to the problem of heat dissipation in the Duthaler display. In Sato, substantially all of the heat generation occurs within the display itself as the high voltage electrons strike the phosphor, and the problem is simply to remove the large amounts of heat generated from the display in order to color break up and other undesirable effects of even temperature. The function of the "air gap" in Sato's Figure 8 is simply to provide

more rapid and efficient heat removal from the display by avoiding the need for the heat to flow through the drive circuits before reaching the cooling air; note that the displays in Sato's Figures 1 to 7 do not have an air gap, and the heat generated within the display must flow through the drive circuits before it can be removed by the cooling air flowing around the display.

The function of the air gap in the present display is completely different. The air gap does not assist in removing heat generated within the display but assists in retarding the flow of heat generated by the drive circuits (or similar heat generating components) *into* the display medium. Furthermore, given the relatively limited amounts of heat generated in a typical reflective electro-optic display, there is no reason why a skilled person would be led to believe that it was necessary to provide an air gap to assist removal of heat from the heat generating components.

For all the foregoing reasons, the 35 USC 103 rejection in the Office Action is unjustified and should be withdrawn.

Since the prescribed period for responding to the Office Action expired May 7, a Petition for a three month extension of this period is filed herewith. The fee for this Petition is being paid with the filing of this Amendment.

Respectfully submitted
/David J. Cole/
David J. Cole
Registration No. 29629

E INK Corporation
733 Concord Avenue
Cambridge MA 02138

Telephone (617) 499-6069
Fax (617) 499-6200
E-mail dcole@eink.com